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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 39

Application Number: 08/384,456
Filing Date: 02/02/95
Appellant(s): Persson et al.

Steven M. duBois
For Appellant

EXAMINER'S ANSWER

This is in response to appellant's brief on appeal filed 01/21/99.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

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(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct. **Applicant's cancellation of claims 23-48 in his Brief is acknowledged.**

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct. **Applicant's cancellation of claims 23-48 in his Brief is acknowledged.**

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 1-22 and 49-52 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

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5,109,390	GILHOUSEN ET AL	04-1992
5,159,608	FALCONER ET AL	10-1992
5,295,153	GUDMUNDSON	03-1994

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims. Since appellant cancels claims 23-48 on Appeal and the examiner finds that claims 49 and 51 are no longer rejected under 35 U.S.C. 112, first paragraph, and that claims 2, 5, 16, 49 and 51 are longer rejected under 35 U.S.C. 102 or 35 U.S.C. 103, the ground(s) of rejection as set forth in the Final action are now modified in order to include the above changes.

Claim Rejections - 35 USC § 112

1. Claims 50 and 52 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claims 50 and 52, the original specification fails to disclose the error correcting step including combination of the first and second demodulated signals **within or subsequent to the determination by the error correction decoding process of the data most likely transmitted.**

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Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 14, 15 and 52 are rejected under 35 U.S.C. § 102(e) as being anticipated by Blakeney, II et al (hereinafter simply referred to as Blakeney).

As to claim 14, see Blakeney, figure 1, numerals 12, 14, 16 for "first and second base stations"; numeral 18 for "remote unit". See figure 2, numeral 34 for "signal processing means"; numeral 34 for "analog to digital conversion means" (also see column 12, lines 61-63); numerals 46, 40, 42 for "CDMA processing means"; numerals 50, 52 for "encoder means"; numerals 38, 36, 30 for "CDMA transmitting means".

As to claim 15, with respect to an "access code", see Blakeney, column 26, lines 59-66, with respect to "base station code", and "traffic channel code", see Blakeney, column 19, lines 24-42.

As to claim 52, see columns 13-14.

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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 7-9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blakeney in view of Falconer et al (U.S. Patent No. 5,159,608, hereinafter simply referred to as Falconer).

As to claim 7, Blakeney discloses a cellular telephone system comprising steps of "decoding at the mobile station" (see column 13, lines 35-65; column 27, lines 11-47), "transmitting a signal from said mobile station the signal strength indications" (see column 4, lines 1-14; column 27, lines 15-39), "receiving the signal strength indications at one of the base stations" (see column 4, lines 5-

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10), "processing the indicated signal strengths at the network controller" (see column 14, lines 10-14).

Blakeney fails to disclose that each of the transmitted signals is encoded with a different "scrambling code". In an analogous art, Falconer teaches a CDMA system in which each of the transmitted signal is encoded with a unique scrambling code, so that it will completely eliminate cross talk and make it very difficult and costly to eavesdrop or track calls (see column 6, lines 47-52). Therefore, it would have been obvious to one of ordinary skill in the art to provide the teaching of "unique scrambling code" in Falconer to Blakeney, in order to completely eliminate cross talk and to make it very difficult and costly to eavesdrop or track calls (as suggested by Falconer).

As to claim 8, with respect to an "access code", see Blakeney, column 26, lines 59-66.

As to claim 9, with respect to "base station code", and "traffic channel code", see Blakeney, column 19, lines 24-42.

As to claim 17, since Falconer teaches encoding an unique scrambling code for each transmitted signal, Blakeney as modified by Dent would read on the claimed limitation "the first and second scrambling codes have different numeric values".

6. Claims 1, 3-4, 6, 10-13 and 50 are rejected under 35 U.S.C. § 103 as being unpatentable over Blakeney.

As to claims 1, 10, Blakeney discloses a **soft** handoff apparatus and method comprising limitations of "first and second base stations" (see base stations A and B of figures 8-9); "mobile station" 18 (figure 1); "network controller" 10 (figure 1); "first frequency" (see column 6, lines 6-8),

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"first code and second code" (see column 6, lines 17-20 for different code phase offsets, see also column 19, lines 25-35); "demodulated first and second signals" (see blocks 42-40 of figure 2, column 13, lines 35-65; column 27, lines 11-12); "signal processing means" 46 (figure 2); "CDMA processing means" 46 (figure 2), "first and traffic signals" (see column lines 23-35), "control message" (see column 19 for hand-off direction message, in-traffic message). In addition, Blakeney does disclose "three different codes" as in claim 10 (see column 16 lines 63-68, column 19 lines 23-42, column 26 line 47 to column 27 line 47 which disclose the soft-handoff process).

Blakeney fails to disclose that the second base station receives the transfer indication from the first base station (instead, the above transfer indication is generated from the "network controller" in Blakeney's reference as recited on column 3, lines 62-68). However, those skilled in the art would have appreciated that in Blakeney's reference the second base station could receive the transfer indication from either the first base station or network controller. In addition, if the transfer indication is transmitted from the base station instead of network controller, less work is going to be done at the network controller. Therefore, it would have been obvious to one of ordinary skill in the art to modify Blakeney reference as recited in the claim, because it would reduce the cost of implementing the network controller.

As to claim 3, with respect a "first base station code", a "first access code", a "second base station code" and a "second access code", see Blakeney, column 6, lines 23-27; column 19, lines 24-27.

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As to claims 11-13, with respect to a "traffic channel code", see Blakeney, column 19, lines 3-10, 31-35, 60-64.

As to claims 4, 6, 50, Blakeney discloses limitations of "error correcting the demodulation signals" (see column 13, lines 62-65; column 14, lines 19-21), "diversity combination" (see column 13, lines 54-65).

7. Claims 18-22 are rejected under 35 U.S.C. 103(a) as being obvious over Blakeney in view of Gudmundson et al (U.S. Patent No. 5,295,153).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by a showing of a date of invention for the instant application of any unclaimed subject matter prior to the effective U.S. filing date of the reference under 37 CFR 1.131.

First of all, since appellant agrees in his Brief that all the cited Ericsson patents disclose subtractive CDMA techniques and in order to simplify the issue on the Appeal, claims 18-22 in this Examiner's Answer are rejected over the only combination of Blakeney in view of Gudmundson.

As to claim 18, Blakeney discloses a **soft** handoff apparatus and method comprising limitations of "first and second base stations" (see base stations A and B of figures 8-9); "mobile

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station" 18 (figure 1); "network controller" 10 (figure 1); "first code and second code" (see column 6, lines 17-20 for different code phase offsets, see also column 19, lines 25-35); "demodulated first and second signals" (see blocks 42-40 of figure 2, column 13, lines 35-65; column 27, lines 11-12); "signal processing means" 46 (figure 2); "CDMA processing means" 46 (figure 2), "first and traffic signals" (see column lines 23-35), "control message" (see column 19 for hand-off direction message, in-traffic message).

Blakeney fails to disclose that the second base station receives the transfer indication from the first base station (instead, the above transfer indication is generated from the "network controller" in Blakeney's reference as recited on column 3, lines 62-68). However, those skilled in the art would have appreciated that in Blakeney's reference the second base station could receive the transfer indication from either the first base station or network controller. In addition, if the transfer indication is transmitted from the base station instead of network controller, less work is going to be done at the network controller. Therefore, it would have been obvious to one of ordinary skill in the art to modify Blakeney reference as recited in the claim, because it would reduce the cost of implementing the network controller.

Blakeney further fails to disclose demodulating, in an order of strongest to weakest signal strength, the first and second signals transmitted from the first and second base stations. In an analogous art, Gudmundson teaches a CDMA system employing CDMA subtractive demodulation in which the received composite signal is decoded in the order of strongest to weakest signal strength so that the signal decoding can be carried out efficiently and accurately (see column 3, lines 53-68,

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column 5, lines 59-62). Therefore, it would have been obvious to one of ordinary skill in the art to provide the teaching of "CDMA subtractive demodulation" in Gudmundson to Blakeney, in order to carry out the signal decoding efficiently and accurately (as suggested by Gudmundson).

As to claim 19, because Gudmundson utilizes "subtractive demodulation", Blakeney as modified by Gudmundson would read on the claimed subtracting step.

As to claims 20-22, the modified Blakeney fails to disclose the power adjustment at the base stations and mobile station as claimed. However, the Examiner takes Official Notice that such a power adjustment is known in the art so that disturbing ongoing traffic will be avoided (as described by the present specification, page 10, lines 1-7). Therefore, it would have been obvious to one of ordinary skill in the art to provide the conventional power adjustment to the modified Blakeney, in order to avoid disturbing ongoing traffic.

(11) Response to Argument

A. In response to appellant's section A (claims 49-52 are rejected under 35 U.S.C. 112, first paragraph):

With respect to claims 49 and 51, the examiner finds appellant's argument persuasive. Accordingly, the rejection to claims 49 and 51 under 35 U.S.C. 112, first paragraph is now withdrawn in this Examiner's Answer.

With respect to claims 50 and 52, appellant argues that the phrase "within or subsequent to the determination by the error correction decoding process of the data most likely transmitted"

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is supported by the present specification (pages 11-12, figure 2) and original claim 6. The examiner, however, disagrees with appellant. First, the whole specification (specifically pages 11-12 and figure 2 as pointed out by appellant) are totally silent about the phrase “**within or subsequent** to the determination by the error correction decoding process of the data most likely transmitted”. Second, original claim 6 merely recites “wherein said error correcting step comprises performing diversity combination of said first and second demodulated signals”, not “wherein the error correcting step includes combination of said first and second demodulated signals **within or subsequent** to the determination by the error correction decoding process of the data most likely transmitted” as recited in claim 50 and “error correcting means for combination of said first and second demodulated signals **within or subsequent** to the determination an error correction decoding process of the data most likely transmitted” as recited in claim 52.

For the foregoing reasons, the examiner believes that claims 50 and 52 are not supported by the original specification.

B. In response to appellant’s section B (claims 14-15 and 51-52 are rejected under 35 U.S.C. 102(e) as being anticipated by Blakeney):

Regarding claim 14, the examiner states in his Final action that although Blakeney discloses diversity combining two signals received from two base stations, these two signals, **before they are combined**, do read on the claimed first and second demodulated signals. In this case, the two output signals of the receivers 40, 42 are demodulated signals and thus read on the two demodulated signals as claimed.

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Appellant, in his Brief, argues that the output signals from the receivers 40 and 42 in Blakeney are not demodulated signals as claimed, but instead encoded data symbols. The examiner, however, disagrees with appellant.

First of all, before trying to analyze output signals of the receivers 40 and 42 in Blakeney, it is important to understand how the signal is transmitted from the base station to the mobile station in Blakeney. As shown in figure 4 and column 18 lines 3-12, voice signal is first initiated from the PSTN and **encoded** by vocoder 106. The encoded signal is then directed to the base station of figure 3 (see column 18 lines 3-12). In the base station of figure 3, the encoded signal is then **encoded** again **according to PN code** by **modulator** 84 (this second encoding is a modulation process) and transmitted to the mobile station of figure 2 (see column 16 lines 51-62). Therefore, the signal transmitted to the mobile station is **encoded** (by vocoder 106), **modulated** (by modulator 84) **signal**. This signal will be **demodulated and decoded** in the mobile station (reverse process of the process in the PSTN and base station). The demodulation is performed by the receivers 40 and 42 and the decoding is performed in the decoder 48. Appellant's attention is directed to column 13 lines 12-13, wherein the receivers 40 and 42 correlate the IF samples **with the proper PN sequence**. It is the reverse process of the modulation at column 16 lines 51-62. In this case, each of the PN codes assigned to each base station as disclosed at column 13 lines 8-21, column 16 line 51 to column 17 line 7 and column 26 lines 62-66 read on the first and second codes as claimed. Therefore, the receivers 40 and 42 perform demodulation and their output signals are demodulated signals as claimed.

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Regarding appellant's discussion of column 13 lines 18-21 of Blakeney, since the demodulated output signals of the receivers 40 and 42 have to be decoded by the decoder 48 (the reverse process of the encoding process at the vocoder 106) in order to produce the baseband signals, these demodulated output signals are of course **encoded data symbols** as disclosed at column 13 lines 18-21. Therefore, the portion at column 13 lines 18-21 "The result of this detection process is a sequence of **encoded data symbols**" that appellant relies on does **not** mean that the output signals of the receivers 40 and 42 are not demodulated signals.

In addition, appellant's attention is further directed to column 28 lines 42-46 which states that "However the mobile station begins to **demodulate** the signals received from base station C along with those received from base station B and **diversity combines** with the signals received from base station B and C". Therefore, it is no doubt that the receivers in Blakeney demodulate the received signals and then diversity combine the demodulated signals.

In addition, appellant's attention is further directed to Blakeney column 10 lines 38-47, wherein Blakeney incorporates the US Patent No. 5,109,390, Serial Number 07/432,552 by reference. The above US Patent No. 5,109,390, which was submitted by appellant on 07/10/92, clearly discloses that the digital receivers 40 and 42 demodulate the received signals (see column 17 lines 47-50).

Regarding claim 15, appellant agrees that Blakeney does disclose "base station identifications" at column 19 lines 24-42, but argues that the "base station identifications" are not "used to process and decode numerical values to obtain demodulated signal" as claimed. The

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examiner, however, disagrees with appellant. In this case, the claimed "numerical values" broadly read on the digitized signal output from the A/D converter included in the receiver 34 (see column 12, lines 61-68), and the claimed "first and second codes" read on the PN sequences in the receivers 40 and 42 (see column 13, lines 1-21 and column 16 line 51 to column 17 line 7). The above PN sequences are assigned to each base station in order to identify each base station (see column 14 lines 24-36, column 16 lines 51-62). **Since each of the PN sequences is used to identify a base station,** the PN sequence includes the base station identification therein. Since the PN sequences are used to decode the received signals as disclosed at column 13 lines 8-21 and in claim 14 above, the PN sequence (base station identification) is "used to process and decode numerical values to obtain demodulated signal" as claimed.

Regarding claim 51, appellant argues that since Blakeney discloses maximum ratio combining, Blakeney fails to disclose CDMA post detection selection combining means for selecting on a symbol-to-symbol basis from either the first demodulated signal or the second demodulated signal the symbols that are to be error corrected. The examiner finds appellant's argument persuasive. In addition, Blakeney at column 11 lines 12-21 specifically discloses that only diversity combining is preferred in order to significantly advance the quality and reliability of communications in a mobile cellular telephone system. Accordingly, the rejection to claim 51 under 35 U.S.C. 102(e) is now withdrawn in this Examiner's Answer.

Regarding claim 52, appellant argues that Blakeney fails to disclose "**within or subsequent** to the determination by an error correction decoding process of the data most likely transmitted" as

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claimed (emphasis added by appellant). The examiner, however, disagrees with appellant. Since the signal combining and error correcting are done within circuitry 48 as disclosed at column 13 lines 62-65, Blakeney reads on the limitation “**within**” as claimed. See also column 23 lines 5-7.

For the foregoing reasons, the examiner believes that the rejection to claims 14-15 and 52 are proper.

C. In response to appellant’s section C (claims 2, 7-9, 16-17 are rejected under 35 U.S.C. 103 as being unpatentable over Blakeney in view of Falconer):

Regarding claim 2, the examiner finds appellant’s argument on page 10 line 20 to page 11 line 8 of his Brief persuasive. Accordingly, the rejection to claims 2 and 16 under 35 U.S.C. 103 is now withdrawn in this Examiner’s Answer.

Regarding claim 7, appellant argues that there are two reasons why claim 7 is patentable over Blakeney:

(i) regarding the claimed limitation of “scrambling codes”, there is no suggestion on Blakeney that such problems exist in that system, and

(ii) Blakeney fails to disclose transmitting a signal from the mobile station indicating the respective signal strengths.

With respect to appellant’s argument (i), in response to applicant’s argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references

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themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the teaching, suggestion, or motivation to combine the applied references **is found in the references themselves** (i.e., “the unique user code **enhances the security** of the communication in the communication channel by scrambling the encoded traffic channel data bits” (emphasis added by the examiner) as suggested by Falconer, column 6, lines 47-52).

With respect to appellant’s argument (ii), the examiner agrees with appellant that the mobile station in Blakeney measures the received signal strengths and reports the measure signal strengths if the measured signal strengths are below a threshold for a predetermined time (see column 4 lines 4-8). Claim 7, however, does not specifically recite under what condition or when the mobile station reports the measure signal strengths. The claim merely recites “transmitting a signal from said mobile station indicating said respective signal strengths”. **Since the mobile station in Blakeney does “transmitting a signal from said mobile station indicating said respective signal strengths” as discussed above** (see column 4 lines 4-8), Blakeney reads on the above claimed limitation.

Regarding claims 8-9 and 17, they are rejected for the same reasons as discussed in claim 7 above.

For the foregoing reasons, the examiner believes that the rejection to claims 7-9 and 17 are proper.

D. In response to appellant’s section D (claims 1, 3-6, 10-13 and 49-50 are rejected under 35 U.S.C. 103 as being unpatentable over Blakeney):

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Regarding claim 1, appellant argues that there are two reasons why claim 1 is patentable over Blakeney:

- (i) Blakeney fails to employ first and second codes as claimed to process signals, and
- (ii) Blakeney fails to disclose first and second demodulated signals as claimed.

With respect to appellant's argument (i), appellant argues that using different code phase offsets of a single code as disclosed at column 6 lines 17-34 is not the same as using different codes. The examiner, however, disagrees with appellant. Blakeney uses the same PN spreading code but with a different code phase offset in order to know from which base station the pilot signal is originated (see column 6 lines 17-27). Therefore, each base station is associated with a unique PN code, wherein each unique PN code comprises the same PN spreading code with different code phase offset. Therefore, using different code phase offsets of a single code as disclosed at column 6 lines 17-34 is the same as using different **unique PN codes**. More important, **claim 1 does not specifically recite what kind the code is**. Therefore, the above unique codes in Blakeney read on the first and second codes as claimed with the broadest reasonable interpretation.

Appellant further argues that Blakeney **correlates the received signals with only one PN code** to extract the mobile station's intended signal (emphasis added by appellant). See column 13 lines 11-12. The examiner, however, disagrees with appellant. The examiner finds that appellant's argument is unsupported because column 13 lines 11-12 does not mention anything about "**only one PN code**". In addition, appellant's attention is further directed to column 16 lines 66-67 which discloses that "the traffic channels are modulated with **each unique PN code**" (emphasis added by

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the examiner). Therefore, if the mobile station is to receive and combine two traffic signals from two base stations as disclosed at column 19 lines 32-35, then two unique PN codes at column 16 lines 66-67 must be employed to demodulate the traffic signals from the two base stations. Appellant's attention is further directed to column 26 lines 62-66 which discloses that "Base station B in response to this information begins transmitting user signals, provided via the MTSO, to the mobile station using the **assigned PN codes** in addition to acquiring signals received from the mobile station, block 208" (emphasis added by the examiner. Note the word "codes" in plural). Therefore, it is no doubt that appellant's assertion that Blakeney correlates the received signals with only one PN code to extract the mobile station's intended signal is in error. Blakeney thus does disclose plural codes (first and second codes) as claimed.

With respect to appellant's argument (ii), the examiner's comments regarding claim 14 above with respect to the first and second demodulated signals are hereby incorporated by reference.

Regarding claim 5, the examiner finds appellant's argument in his Brief persuasive. Accordingly, the rejection to claim 5 under 35 U.S.C. 103 is now withdrawn in this Examiner's Answer.

Regarding claim 6, appellant's attention is directed to Blakeney, column 13 lines 54-65 and column 23 lines 5-7 which discloses combining symbols as claimed. In addition, the examiner's comments regarding claim 14 above with respect to the first and second demodulated signals are hereby incorporated by reference.

Regarding claim 10, appellant argues that Blakeney fails to disclose "three different codes"

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as claimed. First of all, the examiner's comments as set forth in claims 1 and 14 are hereby incorporated by reference. In addition, appellant's attention is directed to Blakeney, column 19 lines 23-42, column 26 line 47 to column 27 line 47 which disclose the soft-handoff process. In this case, "the first code" as claimed reads on the PN code used in the traffic channel between the mobile station and the first base station (see also column 16 lines 63-68); "the third code" as claimed reads on the PN code used in the traffic channel between the mobile station and the new or second base station (see also column 16 lines 63-68); "the second code" as claimed reads on the PN code used in the "Handoff Direction Message" (control message as claimed) between the first base station and the mobile station informing the mobile station of the code used by the new or second base station so that soft handoff can be performed (see column 19 lines 23-42, column 27 lines 1-47). Therefore, it is apparent that Blakeney does disclose "three different codes" as claimed.

Regarding claim 11, appellant argues that Blakeney fails to disclose the codes as claimed. The examiner, however, disagrees with appellant. First of all, the examiner's comments as set forth in claim 15 regarding the base station code are hereby incorporated by reference. In addition, since the first code in Blakeney is used in the traffic channel to transmit traffic signal from the first base station to the mobile station, it is a combination of the first base station code at column 19 lines 26-27 and traffic channel access code at column 16 lines 66-68 so that the mobile station can recognize that the received traffic signal is a signal on the traffic channel from the first base station. Similar, since the second code in Blakeney is used in the control channel to transmit "Handoff Direction Message" as disclosed at column 19 lines 23-42, and column 27 lines 1-47 from the first base station to the

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mobile station, it is a combination of the first base station code at column 19 lines 26-27 and control channel code at column 16 lines 63-66 so that the mobile station can recognize that the received control signal is a signal **on the control channel from the first base station**.

Regarding claims 12-13, they are discussed for similar logic and reasons as set forth above in claim 11.

Regarding claim 49, as discussed in claim 51 the examiner finds appellant's argument persuasive. In addition, Blakeney at column 11 lines 12-21 specifically discloses that only diversity combining is preferred in order to significantly advance the quality and reliability of communications in a mobile cellular telephone system. Accordingly, the rejection to claim 49 under 35 U.S.C. 102(e) is now withdrawn in this Examiner's Answer.

Regarding claim 50, appellant's attention is directed to Blakeney, column 13 lines 54-65 and column 23 lines 5-7 which discloses combining symbols as claimed. In addition, the examiner's comments regarding claim 14 above with respect to the first and second demodulated signals are hereby incorporated by reference.

For the foregoing reasons, the examiner believes that the rejection to claims 1, 3-4, 6, 10-13 and 50 are proper.

E. In response to appellant's section E (claims 18-22 are rejected under 35 U.S.C. 103 as being unpatentable over Blakeney in view of Gudmundson (5,295,153):

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First of all, since appellant agrees in his Brief that all the cited Ericsson patents disclose subtractive CDMA techniques and in order to simplify the issue on the Appeal, claims 18-22 in this Examiner's Answer are rejected over the only combination of Blakeney in view of Gudmundson.

Regarding claim 18, appellant argues that there are three reasons why claim 18 is patentable over Blakeney and Gudmundson:

(i) Blakeney fails to disclose using different codes to encode transmissions from the two base stations,

(ii) Blakeney fails to disclose "transmitting a first signal...to inform the mobile station of a second code, different from said first code, which relates to said second base station", and

(iii) The examiner's conclusion of obviousness is based upon improper hindsight reasoning because only appellant's specification suggests using subtractive demodulation **during soft handoff**.

With respect to appellant's argument (i), the examiner's comments regarding claim 1 above with respect to different codes are hereby incorporated by reference.

With respect to appellant's argument (ii), appellant argues that since Blakeney uses the same PN sequence to encode transmissions from the two base stations to a particular mobile station, Blakeney fails to disclose "transmitting a first signal...to inform the mobile station of a second code, different from said first code, which relates to said second base station". The examiner, however, disagrees with appellant. As clearly discussed in claim 1 above, Blakeney does employ different codes as claimed. Accordingly, Blakeney does disclose "transmitting a first signal...to inform the mobile station of a second code, different from said first code, which relates to said second base

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station” as claimed. In addition, regarding the limitation “informing the mobile station of a second code”, appellant’s attention is directed to Blakeney, column 19 lines 23-42, column 26 line 47 to column 27 line 47 which disclose the soft-handoff process.

With respect to appellant’s argument (iii), in response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In addition, the teaching, suggestion, or motivation to combine the applied references is **found in the references themselves** (i.e., “thereby reduce the interference that is present when the desired signal is decoded” as suggested by Gudmundson at column 5 lines 64-65). Therefore, the combination of Blakeney and Gudmundson is not based upon improper hindsight reasoning as alleged by appellant.

In addition, Gudmundson does suggest using subtractive demodulation **during handoff** (see column 3 lines 43-52, column 5 lines 30-45).

Regarding claims 20-22, appellant agrees that the power control as claimed in claims 20-22 are known in the art, but argues that the obviousness is based upon improper hindsight reasoning because the examiner uses appellant’s own specification to dredge up a motivation (i.e., to avoid

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disturbing ongoing traffic). The examiner, however, disagrees with appellant. The examiner does not pick the motivation from appellant's own specification. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine references **is found in the references themselves** (see the US Patent No. 5,109,390 which Blakeney incorporates by reference as discussed above. The above US Patent No. 5,109,390 suggests that in a CDMA system, the transmission power of the mobile stations should be properly controlled "so as to **reduce interference to other system users**". See column 1 lines 42-45. It is the same as to avoid disturbing ongoing traffic as disclosed on page 10 lines 1-2 of the present specification). Therefore, the rejection to claims 20-22 is not based upon improper hindsight reasoning as alleged by appellant because the motivation or suggestion to combine references is found in the references themselves.

In addition, regarding claim 20 appellant argues that the convention power control on page 10 lines 1-7 would not have motivated one of ordinary skill in the art to have gradually increased a power level of the third signal as in claim 20. The examiner, however, disagrees with appellant. Since page 10 lines 1-7 of the present specification suggests that the power of the new signal (the third signal as claimed) is preferably **slowly** ramped up (**gradually** as claimed), one of ordinary skill

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in the art would have been motivated to modify Blakeney to have gradually increased a power level of the third signal as in claim 20 as suggested by page 10 lines 20-22, in order to reduce interference to other system users or avoid disturbing ongoing traffic (as suggested by the US Patent No. 5,109,390 as discussed above).

In addition, regarding claim 21 appellant argues that the convention power control on page 10 lines 1-7 would not have motivated one of ordinary skill in the art to have gradually decreased a power level of the first signal after the mobile station receives the third signal as in claim 21. The examiner, however, disagrees with appellant for two reasons. First, page 10 lines 1-7 of the present specification suggests that the power should be changed **slowly (gradually as claimed)**. Second, Blakeney discloses that in a soft handoff, the mobile station should **stop transmitting signal** (the first signal as claimed) to the old base station when the mobile station receives signal (the third signal as claimed) from a new base station (see column 27 lines 30-46). Therefore, one of ordinary skill in the art would have been motivated to modify Blakeney to have gradually decreased a power level of the first signal after the mobile station receives the third signal as in claim 21 as suggested by page 10 lines 20-22, in order to reduce interference to other system users or avoid disturbing ongoing traffic (as suggested by the US Patent No. 5,109,390 as discussed above).

In addition, regarding claim 22 appellant argues that the convention power control on page 10 lines 1-7 would not have motivated one of ordinary skill in the art to have gradually increased a power level of signals transmitted to the second base station and gradually decreased a power level of signals transmitted to the first base station during simultaneous transmissions as in claim 22. The

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examiner, however, disagrees with appellant for two reasons. First, page 10 lines 1-7 of the present specification suggests that the power should be changed **slowly** (**gradually** as claimed) and that the power of the new signal is preferably **slowly** ramped up. Second, Blakeney discloses that in a soft handoff, the mobile station should **stop transmitting signal** to the old base station when the mobile station receives signal from a new base station (see column 27 lines 30-46). Therefore, one of ordinary skill in the art would have been motivated to modify Blakeney to have gradually increased a power level of signals transmitted to the second base station and gradually decreased a power level of signals transmitted to the first base station during simultaneous transmissions as in claim 22 as suggested by page 10 lines 20-22, in order to reduce interference to other system users or avoid disturbing ongoing traffic (as suggested by the US Patent No. 5,109,390 as discussed above).

For the foregoing reasons, the examiner believes that the rejection to claims 18-22 are proper.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



**NGUYEN VO
PRIMARY EXAMINER**

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